

Date: Friday, 3/30/2007 8:25:46 AM
 User: Kim Johnston

Process Sheet

| | | | |
|-----------------------|--|------------------|----------------------|
| Customer | : CU-DAR001 Dart Helicopters Services | Drawing Name | : 407 FWD X-TUBE |
| Job Number | : 31547 | | |
| Estimate Number | : 12348 | | |
| P.O. Number | : N/A | Part Number | : D407667105 |
| This Issue | : 3/30/2007 | S.O. No. | : N/A |
| Prsht Rev. | : NC | Drawing Number | : D407-667-145 REV B |
| First Issue | : N/A | Project Number | : N/A |
| Previous Run | : 31055 | Drawing Revision | : N/A |
| | Type : LANDING GEAR | Material | : N/A |
| Written By | : | Due Date | : 4/5/2007 |
| Checked & Approved By | : | Qty: | 1 Um: Each |
| Comment | : Est Rev: 05.09.01 Add holes for compatibility with Bell Skidtubes KJ/JLM | | |

Additional Product

Job Number:



| | | |
|---------|-----------------------|---------------|
| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|

| | | |
|-----|----|------------------|
| 1.0 | DC | DOCUMENT CONTROL |
|-----|----|------------------|



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D206-667-105 CHG002

07/03/30

| | | |
|-----|----------------|-------------------------|
| 2.0 | LANDING GEAR 1 | LANDING GEAR RESOURCE 1 |
|-----|----------------|-------------------------|



Comment: LANDING GEAR RESOURCE 1

PULL FROM STOCK

1 X D407-667-105 B 19132 CHG001

1 X D407-667-105 B CHG001

07-04-02

| | | |
|-----|------------|---------------|
| 3.0 | D407667105 | FWD Crosstube |
|-----|------------|---------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

FWD Crosstube

| | | |
|-----|----------|----------------|
| 4.0 | D2856400 | Abrasion Strip |
|-----|----------|----------------|



Comment: Qty.: 1.2138 f(s)/Unit Total : 1.2138 f(s)

Pick:

Qty Part number Description Batch

2 D2856-400(Cut to 6.94") Abrasion Strip

N/A

already on tube

| | | |
|-----|----------|--------------------|
| 5.0 | D2873043 | Nut Plate Assembly |
|-----|----------|--------------------|



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-043 Nut Plate

31192

07-04-02

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

Date: Friday, 3/30/2007 8:25:46 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 31547

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2873-045

Nut Plate

030450

8T 07-04-02

7.0

D28911

Support 2.25 dia



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2891-1

Support

N/A already on tube

8.0

MS20601AD4W10

RIVET



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Pick:

Qty Part number Description Batch

14 MS20601AD4W10 Rivet

103395

8T 07-04-02

9.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-20

Clamp

N/A already on tube

10.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install abrasion strips as per QSI 035 using DT8579. .Note: (3) top holes should be facing up.

2-Install supports and clamps as per Dwg D407--667-145. Torque clamps to 80-100 in lb

3-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint.

8T 07-04-02

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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NOTE: Date & initial all entries

Date: Friday, 3/30/2007 8:25:46 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 31547

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

AB07-04-30 ①

12.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING
REPAINT CUFFS

RT 07-04-30

13.0

QC14

Inspect Spray Paint



Comment: Inspect Spray Paint

ml 070501

①

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Pick Packing Kit

PC 7/15/01

15.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
Bolt
Batch: *M102115* ✓

16.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
Nut
Batch: *M102536* ✓

17.0

AN510A

Bolt



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)
Batch: *M102404* ✓

18.0

AN530A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
Pick:Packing Kit
Qty Part number Description Batch
4 AN5-30A Bolt *M103387* ✓

PC 7/15/01

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: ☒ ☐ Date: 07/05/00

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Date: Friday, 3/30/2007 8:25:46 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 407 FWD X-TUBE

Job Number: 31547

Part Number: D407667105

Job Number:



Seq. #:

Machine Or Operation:

Description:

19.0

AN960JD516

Washer



Comment: Qty.: 18.0000 Each(s)/Unit Total: 18.0000 Each(s)

Pick: Packing Kit

Qty Part number Description Batch

18 AN960JD516 Washer

M103641-1

PC 7/05/01

20.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

PC 7/05/01 @ NOTED

21.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D407-667-105

Location: _____

PPP Rev: _____

Rev B

7/15/11 SP

22.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

1 7/15/02

Job Completion



U 7/15/02

| | | | |
|-----------------------------------|--------------------|--|-----------|
| DART | | TEL: 1-613-632-3336 FAX: 1-613-632-4448 | |
| TRANSPORT CANADA APPROVAL # 09-89 | | | |
| PN | D407-667-105 | CHG | CHG001 |
| DESC | Crosstube Fwd High | SIC | SH01-5 |
| LOT | B19132 | SIC | SR01304NY |
| MODEL | Bell 407 | SIC | |
| MADE IN CANADA | | | |

Dart Aerospace Ltd

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

| | | |
|---|---------------------|--------------------|
| DART AEROSPACE LTD | Work Order: | 31547 |
| Description: Crosstube Assembly | Part Number: | D407-667-145 |
| Inspection Dwg: D407-667-145 Rev: B | | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

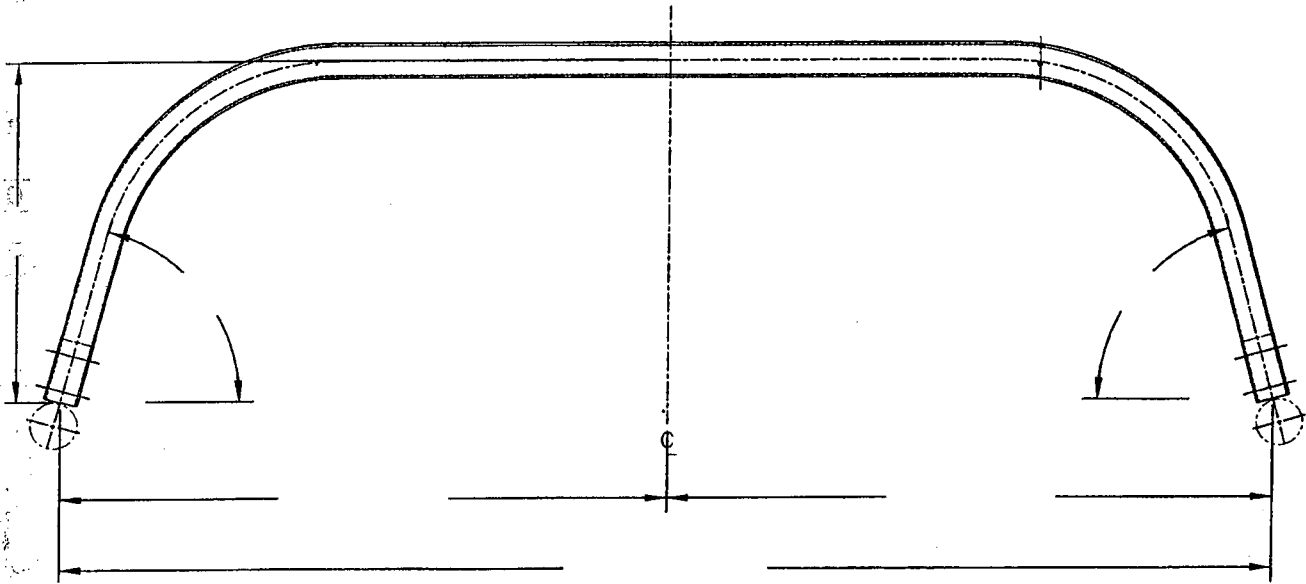
| Inspection Sheet Drawing Dimension | | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|---------------------------------------|--------|---------------|---------------------|--------|--------|-------------------------|----------|
| SIDE A | 2.240 | +0.005/-0.000 | | | | | |
| | 1.865 | +0.005/-0.000 | | | | | |
| | 1.878 | +0.005/-0.000 | | | | | |
| | 1.970 | +0.005/-0.000 | | | | | |
| | 2.030 | +0.005/-0.000 | | | | | |
| | 2.165 | +0.005/-0.000 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | 0.125 | +/-0.010 | | | | | |
| | R0.063 | +/-0.010 | | | | | |
| | R0.500 | +/-0.010 | | | | | |
| | R0.063 | +/-0.010 | | | | | |
| | 4.438 | +/-0.010 | | | | | |
| | | | | | | | |
| SIDE B | 2.240 | +0.005/-0.000 | | | | | |
| | 1.865 | +0.005/-0.000 | | | | | |
| | 1.878 | +0.005/-0.000 | | | | | |
| | 1.970 | +0.005/-0.000 | | | | | |
| | 2.030 | +0.005/-0.000 | | | | | |
| | 2.165 | +0.005/-0.000 | | | | | |
| | | | | | | | |
| | | | | | | | |
| | 0.125 | +/-0.010 | | | | | |
| | R0.063 | +/-0.010 | | | | | |
| | R0.500 | +/-0.010 | | | | | |
| | R0.063 | +/-0.010 | | | | | |
| | 4.438 | +/-0.010 | | | | | |
| | 113.20 | +/-0.020 | | | | | |
| | | | | | | | |

| | | | | | |
|---------------------|--|--------------------|--|----------------------------|-----|
| Measured by: | | Audited by: | | Prototype Approval: | N/A |
| Date: | | Date: | | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A | 04.04.21 | New Issue (P/O D407-667-105) | KJ/RF | |
| B | 06.03.09 | Dwg Rev updated | KJ/JLM | |

| | | | |
|---|--|---------------------|--------------|
| DART AEROSPACE LTD | | Work Order: | 31547 |
| Description: Crosstube High Fwd (407) | | Part Number: | D407-667-105 |
| Inspection Dwg: D407-667-145 Rev: B | | Page 1 of 1 | |

| Required Dimension | Min | Max |
|--------------------|-------|-------|
| Height | 23.48 | 23.60 |
| 1/2 Span | 45.88 | 46.0 |
| Angle | 54 | 56 |
| Total Span | 91.76 | 92.0 |



| Comments |
|----------|
| |
| |
| |
| |

| | |
|-----------------|--|
| QC15 Inspection | |
| Date | |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|-----------|------------|--------------------|
| A | 07.02.06 | New Issue | KJ/JM | <i>[Signature]</i> |



| | | | |
|------------------|-----------------|---|------------------------|
| DESIGN PH | DRAWN BY PH | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| CHECKED HDS | APPROVED HDS | DRAWING NO. D407-667-145 | REV. B SHEET 1 OF 3 |
| DATE 05.07.26 | | TITLE CROSSTUBE ASS'Y (407 HIGH FWD) | SCALE NTS |
| A | 02.05.08 | NEW ISSUE | |
| B | 05.07.26 | ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKIDTUBES | |

RELEASED
05.07.26 H

UNDER REVIEW
06.08.10 PH
re-draw detail

PH
07.03.30

| Qty | Part Number | Description |
|-----|---------------|-----------------------------------|
| X | D407-667-145 | CROSSTUBE ASSEMBLY (407 HIGH FWD) |
| 1 | D6010-115 | CROSSTUBE |
| 2 | D2856-400-694 | ABRASION STRIP |
| 2 | D2873-043 | NUT PLATE |
| 2 | D2873-045 | NUT PLATE |
| 2 | D2891-1 | SUPPORT |
| 14 | MS20601AD4W10 | RIVET (OR NAS9302B-4-10) |
| 4 | MS21920-20 | CLAMP |

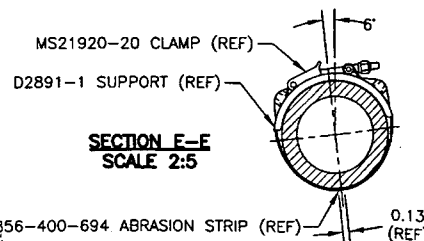
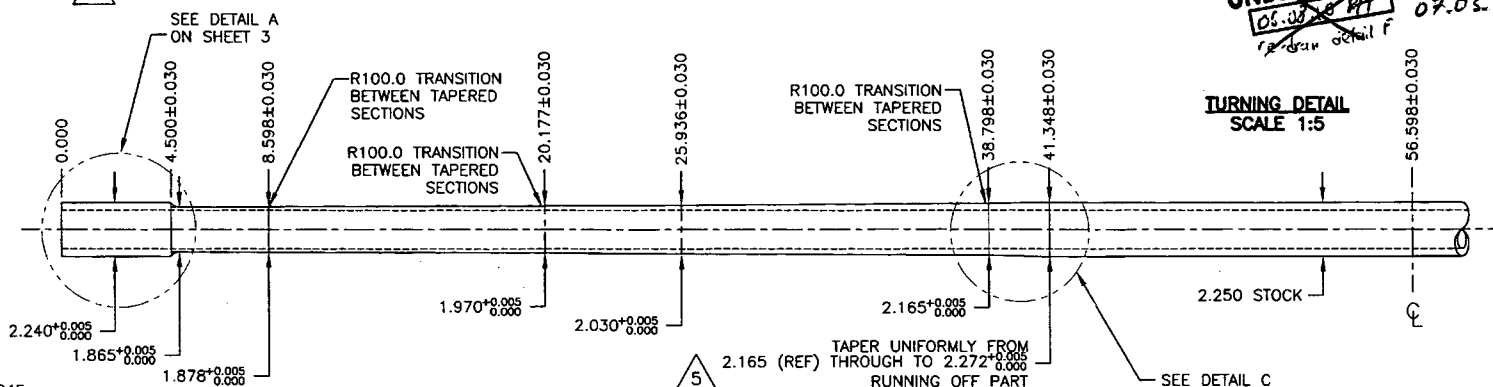
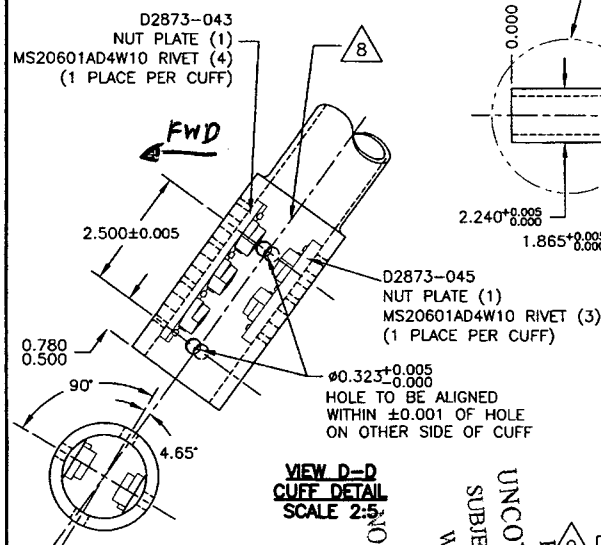
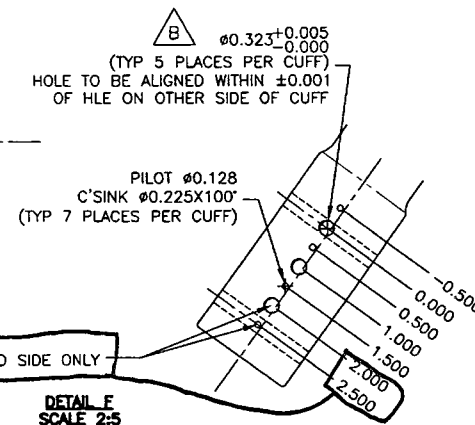
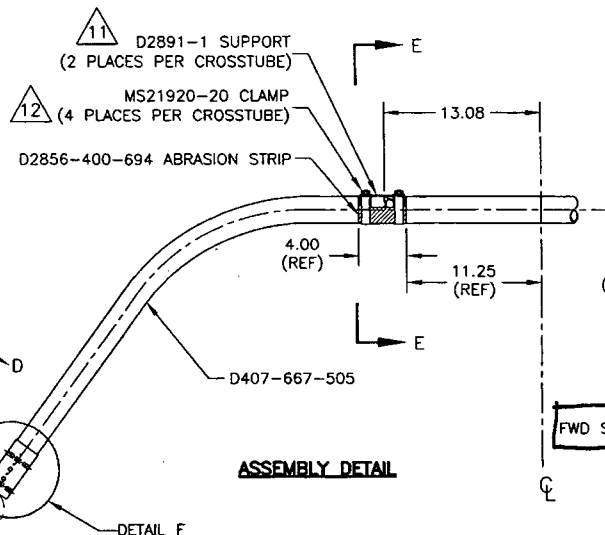
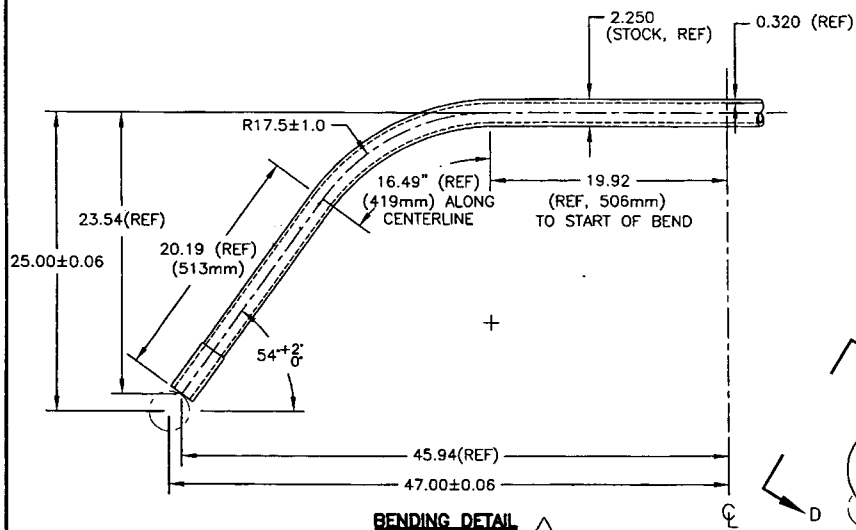
GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20 ± 0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-400-694 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D2891-1 SUPPORT, PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) SEAL EDGES OF SUPPORTS AND ABRASION STRIP USING SIKAFLEX-241/291 SEALANT (OPTIONAL).
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

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WORK ORDER
NO. 31547

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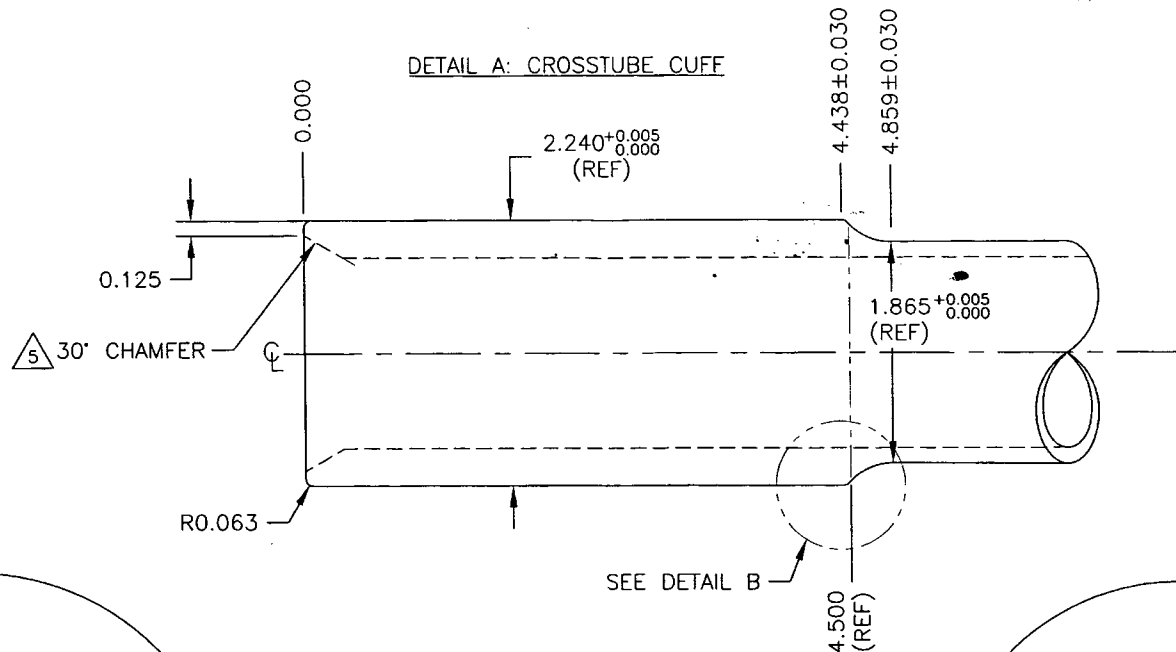
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|----------|------|----------|------|--------------------------------|--|
| CHECKED | PH | APPROVED | PH | DRAWING NO. | REV. B |
| # OS | # OS | # OS | # OS | D407-667-145 | SHEET 2 OF 3 |
| DATE | | | | TITLE | SCALE |
| 05.07.26 | | | | CROSSTUBE ASS'Y (407 HIGH FWD) | 1:10 |

UNDER REVIEW
05.07.26 PH
07.03.20

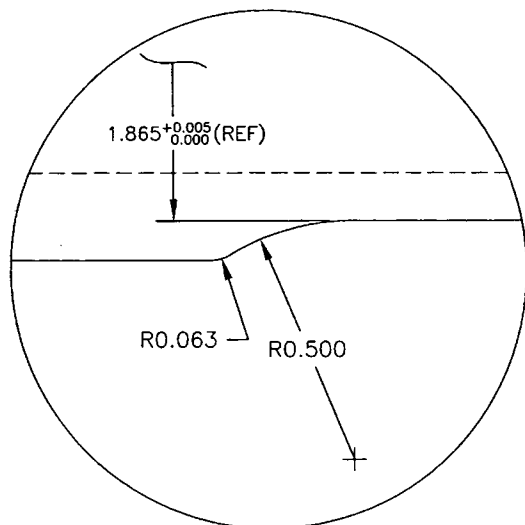
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05.07.26

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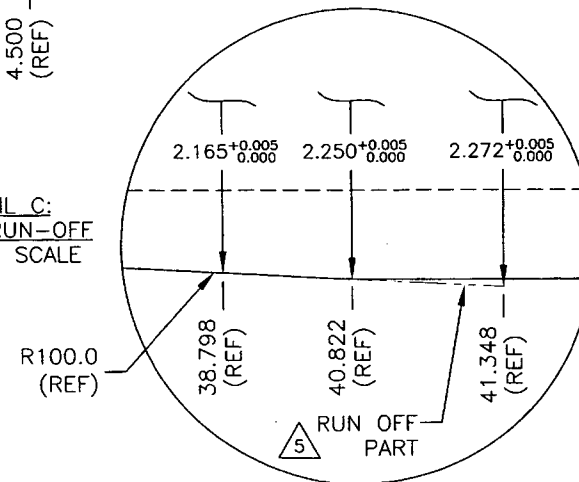
UNDER REVIEW
~~06-01-10~~
 RE-GRAN DETAIL F
 07-03-80

RELEASED
 05-07-26



DETAIL B: CUFF
 TRANSITION
 SCALE 4:1

DETAIL C:
 TAPER RUN-OFF
 NOT TO SCALE



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 WORK ORDER
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| | | |
|------------------|---|--|
| DESIGN PH | DRAWN BY PH | DART DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA |
| CHECKED # DS | APPROVED # DS | DRAWING NO. D407-667-145 |
| DATE 05.07.26 | TITLE CROSSTUBE ASS'Y (407 HIGH FWD) | REV. B SHEET 3 OF 3 SCALE 1:1 |